

R E M A R K S

Careful review and examination of the subject application are noted and appreciated.

Please add new claims 19 and 20.

SUPPORT FOR THE CLAIM AMENDMENTS

Support for the claim amendments may be found in the specification, for example, on page 7 lines 1-16, page 8 lines 1-2, page 10 lines 11-14 and FIGS. 1 and 2, as originally filed, and claims 1 and 3. Thus, no new matter has been added.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

The rejection of claims 1-18 under 35 U.S.C. §103(a) as being unpatentable over Jeon US Pub No. 2004/0066848, in view of Kondo et al. (hereafter Kondo), US Pub No. 2004/0136461, has been obviated in part by amendment, is respectfully traversed in part, and should be withdrawn.

Jeon concerns a direct mode motion vector calculation method for B picture (title). Kondo concerns a motion vector calculating method (title). In contrast, claim 1 of the present invention provides a method for determining a first and a second reference picture of a current block. The method generally includes steps (A) to (D). Step (A) may find in a first list a co-located picture and a block. Step (B) may determine in a second

list a given reference picture of the block. Step (C) generally maps in a third list a reference index to a lowest valued reference index where the given reference picture is stored. Step (D) may use (i) the reference index to determine the second reference picture and (ii) the co-located picture as the first reference picture. The first and the second reference pictures may be used for inter-prediction of the current block. However, the claims include limitations not found in the proposed combination for the reasons given below.

Claims 1, 10 and 19 are independently patentable over the cited references. Claim 1 provides (A) finding in a first list a co-located picture and a block and (B) determining in a second list a given reference picture of the block. Claims 10 and 19 provide similar language. The Office Action asserts that (i) lines 1-2 in paragraph 0088 of Jeon discuss the claimed co-located picture and a block from a first list and (ii) lines 9-12 in paragraph 0088 and all of paragraph 0089 of Jeon mentions the claimed step (B). In contrast, the cited text and the rest of Jeon are silent regarding a reference picture of a co-located block. Therefore, the claims include limitations not found in the proposed combination.

In particular, the cited text of Jeon reads:

[0088] As shown in FIGS. 3f and 4f, a co-located macroblock in a list 1 reference picture for direct mode **can be in the intra mode** regardless of a temporal location of the reference picture... Therefore, the present invention predicts and calculates list 0 and list 1 reference pictures and motion vectors from neighboring blocks of a macroblock of a B

picture to be coded, on the basis of a spatial redundancy.
(Emphasis added)

[0089] A reference picture index for each list mode is acquired in the following manner. FIG. 5 is a view illustrating the motion vector prediction of a block E using motion vectors of neighboring blocks A, B and C in consideration of a general spatial redundancy.

Based on the cited text, the Office Action appears to assert that (i) the B-picture block E of Jeon is similar to the claimed current block and (ii) a co-located intra mode block in a List1 reference picture of Jeon is similar to the claimed block. However, Jeon is silent that the co-located intra mode block has a reference picture in a second list. Since intra mode blocks do not have motion vectors, the co-located intra mode block of Jeon cannot point to another reference picture in another list (see FIGS 3F and 4F where no motion vectors are shown for the co-located block INTRA). The other reference does not cure these deficiencies. Therefore, the claims include limitations not found in the proposed combination.

Claim 1 further provides (C) mapping in a third list a reference index to **a lowest valued reference index where the given reference picture is stored**. Claims 10 and 19 provide similar language. The Office Action asserts that paragraph 0102 of Kondo teaches mapping reference indexes. In contrast, the alleged mapping of Kondo is silent regarding the location where the claimed given reference picture is stored. Therefore, the claims include limitations not found in the proposed combination.

In particular, the cited text of Kondo reads:

[0102] Thus, since assignment of reference picture to reference indices can be changed arbitrarily and the change of the assignment of reference pictures to reference indices **generally assigns a smaller reference index to a picture which improves coding efficiency if selected as a reference picture**, coding efficiency can be improved by using a motion vector, which refers to a picture of which reference index is the smallest, as a motion vector used in the direct mode. (Emphasis added)

The cited text of Kondo appears to concern assigning reference pictures to reference indices based on the possibility of improving coding efficiency. However, the cited text and the rest of Kondo are silent regarding mapping to a lowest valued reference index where a given reference picture (allegedly in Jeon) is stored. Kondo is also silent regarding any reference picture that one of ordinary skill in the art could consider to be similar to the claimed given reference picture. Kondo concerns placement of reference pictures into a list ordered by reference indices. The claims provides for mapping to a lowest value reference index having a specific reference picture, which would be after the reference pictures have been placed in the list. The two operations are different. The other reference does not cure these deficiencies. Therefore, the claims include limitations that are not found in the proposed combination. As such, the claimed invention is fully patentable over the cited references, the rejections of claims 1 and 10 should be withdrawn and claim 19 should be allowed.

Claims 3, 12 and 20 are independently patentable over the cited references. Claim 3 provides storing a unique identifier for each reference picture, the unique identifier being associated from (i) when the unique identifier was used as an inter-reference in the co-located picture to (ii) when the unique identifier is made available as a potential List0 inter-reference for the current picture. Claims 12 and 20 provide similar language. The Office Action asserts that FIG. 1 element 108 of Kondo shows the operation of storing unique identifiers of each reference picture. In contrast, FIG. 1 of Kondo does not have an element 108 as alleged in the rejection. Furthermore, FIG. 1 of Kondo does not show a storing operation. In contrast, paragraph 0034 of Kondo states that, "FIG. 1 is a schematic diagram showing a referential relation of pictures of a conventional example." FIG. 1 and the rest of Kondo are silent regarding an association of the unique identifier to the reference pictures. FIG. 1 and the rest of Kondo are silent regarding storing the alleged unique reference numbers of reference pictures. The other reference does not cure these deficiencies. Therefore, the claims include limitations not found in the proposed combination. As such, claims 3 and 12 are fully patentable over the cited references, the rejections of claims 3 and 12 should be withdrawn and claim 20 should be allowed.

Claims 4 and 13 are independently patentable over the cited references. Claim 4 provides storing a unique identifier of

the given reference picture. Claim 13 provides similar language. Despite the assertion in the Office Action, paragraphs 0102 and 0105 of Kondo do not mention any unique identifiers for any reference pictures. The cited text and the rest of Kondo are also silent regarding storage of the alleged unique identifiers. The other reference does not cure these deficiencies. Therefore, the claims include limitations not found in the references.

In particular, the statement in the rejection that "Kondo teaches that the motion vector refers to a picture of which reference index is smallest" is immaterial to the claims. Reference indices are already provided in the independent claims. As noted in the remarks for claims 3 and 12 in the previous amendment, "Which pictures are actually located in each reference picture list is an issue of the multi-picture buffer control." The reference indices of Kondo are not unique to the reference pictures. Furthermore, claims 4 and 13 provide for unique identifiers of the reference pictures. Claims 4 and 13 do not include any limitations relating the unique identifiers to the reference indices. The other reference does not cure these deficiencies. Therefore, the claims include limitations not found in the proposed combination and the rejections should be withdrawn.

Claims 5 and 14 are independently patentable over the cited references. Claim 5 provides that the inter-prediction operates on (i) a macroblock when in a first configuration and (ii)

a macroblock partition when in a second configuration. The Office Action asserts that paragraph 0087 of Jeon mentions (i) macroblocks when in a first configuration and (ii) macroblock partitions when in a second configuration. In contrast, the cited text and the rest of Jeon are silent regarding (i) a first configuration and a second configuration and (ii) how the system of Jeon operates differently when in the two configurations. Therefore, the claims include limitations not found in the proposed combination.

In particular, the cited text of Jeon reads:

[0087] On the other hand, a frame mode and a field mode are switched at a picture level, so the B picture and list 1 reference picture can be coded into frame mode or field mode. As a result, a macroblock of the B picture and a co-located macroblock of the list 1 reference picture have four types of frame/field-coded combinations.

Nowhere in the above text, or in any other section does Jeon appear to mention two configurations similar to the claimed first configuration and the claimed second configuration. Instead, the cited text merely mentions that a B picture macroblock and a co-located macroblock can have four types of frame/field-coded combinations. Furthermore, nowhere in the above text does Jeon appear to mention macroblock partitions, as presently claimed. The other reference does not cure these deficiencies. Therefore, the claims include limitations not found in the proposed combination and the rejections should be withdrawn.

Claims 6 and 15 are independently patentable over the cited references. Claim 6 provides searching the third list for

the lowest valued reference index identified by the unique identifier and returning the value of the lowest valued reference index. Claim 15 provides similar language. The Office Action asserts that paragraphs 0102 and 0105 of Kondo mentions searching a List0 reference list for a reference index identified by a unique identifier. In contrast, as argued above for claims 3, 4, 12 and 13, Kondo is silent regarding unique identifiers for the reference pictures. Thus, Kondo cannot teach searching for a reference index identified by the missing unique identifiers. The other reference does not cure these deficiencies. Therefore, the claims include limitations not found in the proposed combination and the rejections should be withdrawn.

Claims 2-9 and 11-18 depend, either directly or indirectly, from the independent claims, which are now believed to be allowable. As such, the dependent claims are fully patentable over the cited references and the rejections should be withdrawn.

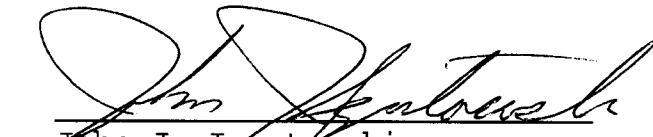
Accordingly, the present application is in condition for allowance. Early and favorable action by the Examiner is respectfully solicited.

The Examiner is respectfully invited to call the Applicants' representative between the hours of 9 a.m. and 5 p.m. ET at 586-498-0670 should it be deemed beneficial to further advance prosecution of the application.

If any additional fees are due, please charge Deposit
Account No. 50-0541.

Respectfully submitted,

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c/o Pete Scott
LSI Corporation

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